

FUNCTIONALIZED ELASTOMER NANOCOMPOSITE

ABSTRACT

An embodiment of the present invention is a nanocomposite comprising a clay and an elastomer comprising at least C₂ to C₁₀ olefin derived units; wherein the elastomer also comprises functionalized monomer units pendant to the elastomer. Desirable embodiments of the elastomer include poly(isobutylene-*co*-*p*-alkylstyrene) elastomers and poly(isobutylene-*co*-isoprene) elastomers, which are functionalized via Friedel-Crafts reaction with a Lewis acid and a functionalizing agent such as acid anhydrides and/or acylhalides. The clay is exfoliated in one embodiment by the addition of exfoliating agents such as alkyl amines and silanes to the clay. The composition can include secondary rubbers such as general purpose rubbers, and curatives, fillers, and the like. The nanocomposites of the invention have improved air barrier properties such as are useful for tire innerliners and innertubes.